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TEACHING PORK PRODUCTION IN SECONDARY SCHOOLS.

INTRODUCTION.

Teachers of agriculture and others interested in the boys and girls of the country are awakening to a realization that the swine industry may be utilized to advantage in the training of young farmers. Pigs, like poultry, fit in well with the project plan. Most of the boys and some of the girls will find a way to keep one or more pigs if their interest is aroused in the right way. Where practical work has been started the class work should be centered around that work, yet it may also be used in arousing interest.

The number of lessons will depend upon a number of factors, including the extent of the course and the local importance of the industry. The lessons dealing with pork production should follow lessons and practice in judging the important types and breeds of swine. It will be necessary to adapt the instruction to the community in which the school is located as well as to the course given.

THE HOME PRODUCT.

If possible, each member of the class should be induced to raise one or more pigs as a production project. In a production project the chief aim is production at a profit. In such a project the student may at the same time improve the home stock of swine and demonstrate better methods to his father and neighbors, but these results will not be sought for primarily as in improvement and demonstration projects. While the primary object from the pupil's point of view may be the making of money, the chief aim of the teacher is the development of the pupil through his project. In order to secure the best educational results there must be close correlation between school work and project and a close supervision of the project by the teacher. A successful project necessitates close cooperation between the home and school. The teacher should have an understanding with the parents that the project is a part of the work of the school. In some cases a written agreement is made by teacher, pupil, and parents. The student should keep a careful record of the time spent and methods used, along with cost and income accounts. A written report should be made of the project by each student.

The home project may be correlated with the work of the pig clubs where they have been organized.

The following is suggestive of an outline which may be used in correlating the class work with the project:

PIG PROJECT STUDY OUTLINE.

Although the outline is intended for each student to serve as a guide for his study in connection with his project, it may be placed upon the blackboard to be used by the class as a whole in their discussion of the subject. Following the outline are suggestions upon the topics which it suggests. In connection with the Farmers' Bulletins given as references, publications of the State experiment stations should be used in adapting the lessons to local conditions.

RAISING PIGS ON OWN ACCOUNT—A PRODUCTION PROJECT.

- I. Shall I raise pigs for my project?
 1. Do I like pigs?
 2. Is this section suited to the profitable production of pork?
 3. Do pigs fit in well with our farm management plan?
 4. Is cholera or any other disease liable to prevent profits?
- II. What shall be my aim in raising pigs?
 1. Shall I feed one or more pigs during the summer to market in the fall or winter?
 2. Shall I aim toward building up a pure-bred herd for breeding purposes?
 3. Shall I make a combination of the aims above?
- III. How shall I get a start?
 1. Shall I buy one or more young pigs?
 2. Shall I buy a sow which has been bred?
 3. Shall I buy pure-bred pigs or grades?
 4. What breed shall I buy?
 5. Do I know the points of a good pig?
- IV. Can I give breeding animals proper management?
 1. Do I know how to manage the boar and sow at breeding time?
 2. Can I give a brood sow the proper care?
 3. Can I manage sow and pigs properly at farrowing time?
- V. How shall I care for young pigs?
 1. What attention do they need before weaning?
 2. What care and feed shall I give them after weaning?
 3. What is the best method of weaning?
 4. Shall I allow my pigs to run in a pasture, or shall I feed them in a pen?
 5. What crops shall I grow for my growing pigs?
 6. What special care will my pigs need in summer?
- VI. How shall I fatten my pigs for market?
 1. What records shall I keep that I may know how much the pork I am producing will cost?
 2. At what age will fattening for the market be most profitable?
 3. What is the most satisfactory ration I may feed for fattening?
 4. What methods of feeding shall I use?
- VII. How shall I care for my pigs during the winter?
 1. What is the most satisfactory method of feeding for maintenance during the winter?
 2. What special care will my pigs need in winter?
- VIII. What kind of hog house shall I build?
 1. What factors shall I keep in mind in building a hog house?
 2. Can I afford an elaborate house?
 3. Can I make a plan for such a house as I need and build it?
- IX. How can I prevent disease?
 1. Do I appreciate the importance of cleanliness and sanitation?
 2. Will I give the pigs a chance to keep clean?
 3. Do I know how to prevent such common ailments as scours, worms, and lice?
 4. Do I know the nature of hog cholera, how to handle a case of infection, and how to prevent such infection?
 5. Can I perform such simple operations as castration and extraction of teeth?

POSSIBILITIES IN PIGS.

Pigs offer possibilities to the boy who wishes to try some phase of animal husbandry on his own account, because comparatively little capital is required for stock and equipment, and because relatively quick returns are secured. The fact that swine are very prolific is also of importance in connection with getting a start. A small beginning with good management will soon result in a herd of good size. Swine are economical producers of meat, giving a relatively large amount of meat for the amount of food consumed. They furnish an efficient means of marketing coarse fodders and grains; in many cases turning waste and by-products into meat at a very low cost.

Inasmuch as it is possible for most students in rural high schools to enter into a pork-production project, it may be well for the teacher to use the lessons relating to swine to bring out the essentials of general animal production. Much that is learned regarding the feeding and breeding of swine may be applied to other animals.

GETTING A START.

Before a boy makes a start toward raising pigs he should decide what shall be his aim. He may desire merely to feed one or more pigs during the summer to market in the fall, or he may aim toward building up a pure-bred herd of breeding animals, or he may combine the aims mentioned by raising a litter of pigs and fattening for market all except one or two of the best, which he may keep for breeding.

If the lessons on types and breeds have been effective, the students will be prepossessed in favor of pure-bred animals. He should use to advantage the information he has received in selecting the animals he is to buy. It may be impossible to secure pure-bred pigs in the community or the price may be prohibitive to the *young breeder*. In some sections an effort is being made in connection with the pig clubs to get the whole community to center its efforts upon good stock of one breed. The teacher and students may aid in this worthy movement. The individual may have a breed preference. He should decide also as to whether to buy a breeding sow or young pigs. In many cases getting a start means simply that the father of the student is prevailed upon to let his son take care of one or more pigs of the home herd upon his own account.

MANAGEMENT OF MATURE ANIMALS.

Special attention should be given the selection and management of brood sows. The students should learn what they can of methods used by the best breeders in the community and supplement this information with suggestions from books and bulletins used as references. If the farm of a successful breeder is near the school, the class should visit it for the purpose of studying methods of management. When the subject has been discussed the students should know something about the characteristics of a good brood sow and the methods of feeding and management at breeding time. It is assumed that the underlying principles of feeding will have been studied previously so that the students will understand in a general way the nature and the amount of the ration needed in supporting the sow and the litter of pigs both before and after birth.

CARE AND FEEDING OF YOUNG STOCK.

This topic will be of special interest and importance, as most of the boys will get their start with young pigs. Their weaning should be given attention as well as their care and feeding after they are weaned. While systems of feeding and management will depend to a great extent upon local conditions, in nearly all sections pasturage and production of green feed is important in profitable pork production. The growing of crops may be more properly considered as a part of the course in crop production, but their general management in connection with pig feeding

should be considered at this time. General care as well as feeding should be based upon a knowledge of the animal. The students should know the nature of pigs that may better supply their needs.

FATTENING FOR MARKET.

In considering the production of pork it is important that emphasis be laid upon the cost of the feed in relation to its feeding value, and upon the relation of the cost of production to the age of the hog. The students should formulate the ration which may be fed using feeding stuffs available to them and work out the relative cost of different rations thus compounded. In the corn belt their problem will not be so much a question of suitable food for fattening as that of food suitable for rapid growth, while in other sections it may be a problem of securing a cheap substitute for corn in the finishing ration. It will be well to have the students investigate methods of feeding in the community, and discuss these methods in the class with suggestions for improvement which may have been gleaned from the reference reading. The results of different methods of feeding may be shown effectively with a chart which shows, in outline form, hogs of size proportionate to the results obtained. An outline may also be used to show the cuts of meat. Only in the more extended courses will there be time to consider butchering and the curing of meat. If there is a packing house not too far away from the school a visit will be very profitable in connection with this subject.

WINTER CARE AND FEEDING.

In some sections this need not be considered as a separate topic as the mild winters offer no new problems in care and feeding. Where the fattened stock is marketed in the fall it may be well to consider special maintenance rations for winter feeding. In northern sections winter care gives new problems, especially when fall farrowing is practiced.

HOUSES AND YARDS.

After the students have learned something of the needs of the hog they will be in a position to discuss houses and yards, with such related topics as feeding floors, dipping vats, and hog wallows. They should understand the importance of dryness, ventilation, light, warmth, convenience, durability, and strength. The relation of the cost of houses, yards, and other equipment to economical production should be brought out. Time may better be given to the smaller types of houses and cots which may be within the reach of a beginner rather than to the more elaborate and expensive ones.

In connection with the discussion of houses and yards students should be given practice in the building of houses and yard appliances under the direction of the teacher. A small house or cot may be built as a model which the boys may copy to advantage in connection with their projects. It may be built at the home of one of the students or a patron near the school or a movable house may be built at the school grounds. The house may be sold at cost. Breeding crates or feeding troughs may be made in connection with the houses or by classes which desire a more simple practicum.

Plans for houses, crates, and troughs are given in Farmers' Bulletins 205 and 438, listed at the end of this article.

PREVENTION OF DISEASE.

The subject of disease prevention is closely correlated with the subject of sanitation. Sanitation can not be given too much emphasis in connection with swine husbandry. There will not be time nor necessity to go into the diseases of swine unless some of these diseases are especially prevalent in the district. In sections where such a disease as hog cholera prevails, successful pork production depends upon the control of the disease, hence special attention should

be given the disease and means of control. In cases where swine are purchased from outside the district emphasis should be placed upon the necessity of quarantine if there is danger of introducing disease. The students should know the symptoms of a diseased condition and something of simple correctives. In many sections the control of external parasites should be given special attention. Practice in dipping swine on a neighboring farm may be open to the class.

REFERENCES ON SWINE.

- Pig Management, U. S. Dept. Agr., Farmers' Bulletin 205 (1904).
 Hog Houses, U. S. Dept. Agr., Farmers' Bulletin 438 (1911).
 Boys' Pig Clubs, U. S. Dept. Agr., Farmers' Bulletin 566 (1913).
 Hog Cholera, U. S. Dept. Agr., Farmers' Bulletin 379 (1909).

PROFESSIONAL IMPROVEMENT FOR TEACHERS OF AGRICULTURE.

INTRODUCTION.

The demand for men to teach agriculture in secondary schools has been greater than the supply. This fact accounts in a large measure for the relatively large salaries which have been paid teachers of agriculture. Comparatively few men have taken courses in agriculture in years past with a view of entering the teaching profession as a life work. While many students are now taking courses in agriculture with the avowed purpose of becoming teachers, it is highly probable that salaries paid teachers of agriculture will continue to be relatively high, because the teaching of agriculture requires special ability and special training. The qualifications essential in a successful teacher of agriculture are largely the same as those needed in a number of other popular lines of agricultural endeavor, hence a premium will be placed for some years to come upon those who have proper training. At present the call for men to become extension representatives in connection with carrying out the Smith-Lever Act is increasing greatly the demand for men with much the same qualifications as those who might become successful teachers of agriculture; in fact, a number of county agents have been taken from the ranks of teachers in secondary schools.

While much progress is being made in the training of teachers for the future, we must look to those who are now engaged in the work if the standard of teaching is to be raised and agriculture is to be accorded the position it merits in the school curriculum. Much of the work of the past few years has been experimental. It is those who are now teaching who have received the greatest benefit from the experience. It is the purpose of this paper to suggest ways and means by which those who are now engaged in teaching may take advantage of the experience of their fellow teachers and others who are working toward solving the multitude of problems which confront the teachers of agriculture in secondary schools.

QUALIFICATIONS OF TEACHERS OF AGRICULTURE.

Before we can consider intelligently the question of training a teacher of agriculture it is necessary to consider the qualifications he should possess. It has been said that teachers are born and not made. There is a tendency at the present time, however, to emphasize special training for those who are to direct the development of youth. Important as training undoubtedly is, the fact remains that certain qualities which make up a teacher are inborn. It should be needless to add that the teacher of agriculture should have the inherent general qualifications of a good teacher. He should have those and something more; he should have inherent love for and sympathy with country life and an abiding interest in things out of doors, especially in the soil and in plants and animals in their relation to man. Closely akin to this qualification is that which one writer calls "rural mindedness," which he states may be acquired, although the ability to acquire it is inherited.

We are most interested at this time in those qualifications which may be aided by training. In the preceding paragraph it is suggested that the person we are now considering must be both a teacher and an agriculturist. As a teacher he should be trained both in the science of education and the art of teaching. As an agriculturist he should be trained both in the science of agriculture and the art of farming. As agriculture and education are based upon a great many of the older and better organized sciences, it means that the successful teacher of agriculture must have a very comprehensive knowledge. It is most important that he have what is known as the scientific spirit.

If the teacher of agriculture is adept in his art he must understand the child and that which underlies the learning process. A teacher in the high schools should understand in particular the problems of adolescence. He should know how to choose and organize lesson material in a manner suitable to the students and their needs. He should be trained in matters of discipline and management of students in the classroom and wherever he may work with them.

The successful teacher of agriculture, if he is to make good in the eyes of patrons and students, must not only be able to practice what he preaches, but he must also have the ability to direct others in practical work. There is a strong tendency for agriculture in secondary schools to become vocational. The teacher must be able to direct practicums and home projects carried on by students. In winning the approval of patrons and in extending the influence of progressive agriculture beyond the schools, he should be capable of carrying on practical extension work among the farmers. While directing this practical work, as well as in the classroom, the teacher should be able to answer why as well as to tell how. This means that his training in agricultural science should be broad. The teacher of agriculture in a secondary school should not be a narrow specialist, although he should take a special interest in that phase of farming most important, or which may be most needed in the community.

If the teacher of agriculture is to have the respect which he and his subject deserves, he must be a man of pleasing personality and broad training. He must have a good command of the mother tongue and appear to advantage before men. He should show by his manner and bearing that training in agriculture is not incompatible with culture; that a man may be a farmer and a true gentleman.

The ideal teacher of agriculture is indeed a resultant of a broad training. The majority of those now teaching may not measure up to the standard set. Those most in need of training may be divided into two classes; those having academic or normal training who are lacking in a knowledge of agriculture, and graduates of agricultural schools who have not had professional training. It is well that each teacher take an inventory of himself often, and then work toward making up deficiencies.

METHODS AND AGENCIES FOR PROFESSIONAL IMPROVEMENTS.

Resident courses.—Teachers who find themselves very weak, or those who are ambitious for rapid progress, will find it the best plan to give up teaching for a period and take a resident course if such can be arranged. For those needing training in agriculture, the State agricultural colleges will, as a rule, offer courses best suited to high school teachers, although in some States there are secondary schools which give courses of a more practical and general nature which may be better suited to the teachers' immediate needs. The teacher who is in need of normal training may often secure such training as will better fit his immediate needs in one of the normal schools than in the more advanced courses of the university.

Teachers who have had both normal and agricultural training will profit by courses in special methods of secondary agriculture. Such courses are being introduced into normal schools and

agricultural colleges in connection with the recently organized departments of agricultural education.¹

Those who can not give up their teaching will find the courses given in the summer schools well suited to their needs. The majority of summer schools give courses in agriculture, many of which are intended especially for teachers. Most of the schools having departments of agricultural education give special courses in the summer school in methods of teaching secondary agriculture.²

In cases where teachers are employed for the summer months, arrangements have been made for them to take a vacation in the winter time, when some teachers have taken advantage of short courses in agriculture given during the winter months. Some institutions are giving short courses intended especially for employed teachers during the regular session. In some States teachers may take advantage of Saturday classes held at the colleges and normal schools.

Correspondence courses.—Although correspondence courses do not on the whole afford the training which may be secured in resident courses, they offer a number of advantages to employed teachers. At a relatively slight expense the teacher may pursue a course through correspondence without breaking into his regular work or his vacation. The correspondence course may be fitted to a teacher's time, and to a great extent to his individual needs. There is no doubt but that students will derive much more benefit from a correspondence course well organized and supervised than they will from general reading.²

In a district where a number of teachers can be prevailed upon to take the same courses, a study club may be organized and classes held which should add greatly to the value of the correspondence instruction.

Extension classes.—A part of the extension work of some of the colleges consists in conducting classes in agriculture and methods of teaching. These classes are conducted by a representative of the college who meets with the teachers after school or upon Saturdays. A plan for elaborating such classes into teachers' extension schools is being worked out in Ohio. Good results have been obtained when teachers have taken the initiative in organizing classes and conducting them with one of their number as a leader. While a textbook may be used in such class, every effort should be made to adapt the book to the needs of the class. Outside speakers should be invited in and field trips taken often.

Institutes, conventions, etc.—A great deal of practical agriculture may be learned by attending institutes and other meetings of farmers. If such meetings are not held in the district, there is an opportunity for the teacher of agriculture to aid in holding such meetings. Teachers may conduct meetings ostensibly to aid the farmers, yet if good speakers are secured they may gain a great deal themselves. In many districts local teachers' institutes are no small factor in professional improvement. The teaching of agriculture is becoming a popular topic at such institutes. In some States special sessions for teachers of agriculture are held in connection with district or State conventions of teachers. The teacher should not need urging to attend such meetings, as they afford an opportunity for exchange of ideas, for keeping in touch with progress and for securing the stimulation and inspiration which comes from contact with progressive workers who have similar interests.

Self-directed study.—There are some teachers whose work makes such demands upon them that they have no time for organized professional improvement. In the first year of teaching it is very likely that the preparations of lessons and outlines, the organization of materials, and the planning of practicums will leave little time for outside study. The teacher who puts a great deal into his work will get a great deal out of it, hence those who have no

¹ Lists of institutions offering resident courses in agriculture and agricultural education will be furnished by this service to those interested.

² For lists of institutions maintaining courses in agriculture in summer sessions and correspondence courses in agriculture, see U. S. Dept. Agr. Bul. 7, 1913.

time for special study may be making excellent progress along the lines most needed. There are few teachers who can not make time for reading along the line of their profession. They can not do justice to their work unless they keep far ahead of their students in subject matter and keep up to date in that which pertains to method.

Practical farm work.—Teachers who are weak in the practical side of agriculture should utilize every opportunity to strengthen themselves along that line. Such men spend their summers or other vacation periods in practical farm work. Some teachers have been able to manage small places which they have either owned or rented for the purpose of securing the practical experience needed. Although the teacher who carries on practical farm work while teaching may secure needed training and at the same time demonstrate that he is not altogether a “book farmer,” there is the danger that he may neglect his school work for the sake of his farming interests. Some teachers have secured practical experience by working upon farms under good managers.

REFERENCES.

- Agricultural Training Courses for Employed Teachers. U. S. Dept. Agr. Bul. 7 (1913):
- The following lists may be obtained from the Division of Agricultural Instruction, States Relations Service:
- List of U. S. Department of Agriculture Publications of Interest to Teachers of Agricultural Education.
- List of U. S. Department of Agriculture Publications on Agronomy.
- List of U. S. Department of Agriculture Publications on Horticulture for Employed Teachers.
- List of U. S. Department of Agriculture Publications on Animal Husbandry for Employed Teachers.
- List of U. S. Department of Agriculture Publications on Dairying for Employed Teachers.
- List of U. S. Department of Agriculture Publications on Agricultural Engineering for Employed Teachers.
- List of U. S. Department of Agriculture Publications of Interest to Teachers of Home Economics.

Bibliographies pertaining to the various branches of education may be obtained from the U. S. Bureau of Education at Washington, D. C. Price list 31, 4th edition, which may be obtained free from the Superintendent of Documents, Government Printing Office, Washington, D. C., is a list of Government publications on education sold by the Superintendent of Documents.

NEW STANDARDS FOR HIGH-SCHOOL TEACHERS.

The State superintendent of education in Minnesota has prescribed new professional requirements for high-school teachers to go into effect for those teachers beginning their work after August, 1915.

All high-school teachers must be graduates of a standard college and have professional training, including special methods and practice teaching, equivalent to fifteen semester-hours credit. These general requirements interpreted to fit the teacher of agriculture are as follows: (1) A bachelor's degree in agriculture from a standard college accredited by the State superintendent of education; (2) special methods of agricultural teaching; three semester-hours credit; (3) practice teaching in agriculture, three semester-hours credit; and (4) additional professional work equivalent to nine semester-hours credit. Graduates of standard agricultural colleges who can not qualify for the year 1915-16 may attend the university summer school for six weeks and obtain three semester-hours credit in special methods and three semester-hours in one other professional subject.

SOME RECENT PUBLICATIONS RELATING TO AGRICULTURAL INSTRUCTION.

- High-School Clubs in Agriculture and Home Economics. Utah Agr. Col., Ext. Div. Circ. 2 (1914), No. 43, pp. 6.
- Elementary Vocational Agriculture for Maryland Schools. Maryland Agr. Col., Dept. Agr. Ed. (1915), vol. 1, No. 1.
- Lessons in Elementary Agriculture for Alabama Schools. U. S. Dept. Agr. Bul. 258 (1915).
- Progress of Agricultural Education in 1913-14. (Reprint from the Report of the U. S. Commissioner of Education for the year ended June 30, 1914.)